

THE ART OF MODELING.











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THE

ART OF

MODELING,

BY

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EDITOR OF

*The Reporter, a Journal Devoted to the Interests of Sculptors,  
Marble and Granite Workers.*

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## CONTENTS.

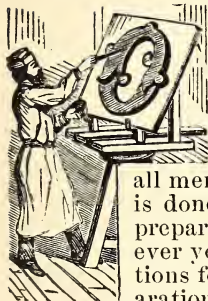
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INTRODUCTION . . . . .	1
INSTRUCTIONS—PREPARATION OF THE CLAY, . . .	5
TOOLS, . . . . .	6
TO MAKE TOOLS, . . . . .	7
TO MODEL A MEDALLION, . . . . .	7
TO MAKE A PLASTER MOLD FOR MEDALLION, . . .	8
TO MAKE BRIMSTONE MOLDS . . . . .	10
TO POLISH PLASTER CASTS, . . . . .	10
TO MODEL A BUST . . . . .	11
TO MOLD THE FACE FROM LIFE, . . . . .	11
TO MAKE TRANSFER OR WASTE MOLDS, . . .	14-18
TO MAKE A PIECE MOLD, . . . . .	16
TO MOLD THE HAND AND FOOT FROM LIFE, . . .	19
MODELING TABLE, . . . . .	20
TO MAKE GELATINE MOLDS, . . . . .	20
LIST OF MATERIAL AND TOOLS FOR GELATINE MOLDS,	24
PROPORTIONS, . . . . .	24
HINTS AND RECIPES, . . . . .	25

# CONTENTS.

PROFILE FROM LIFE . . . . .	26
PROPORTIONS OF THE HUMAN FORM, . . . .	26
MISCELLANEOUS RECIPES, . . . . .	29
VARNISH FOR PLASTER AND MARBLE EXPOSED TO AIR,	29
TO CLEAN ALABASTER, . . . . .	29
TO MAKE PLASTER CASTS TOUGH, . . . . .	30
TO MAKE PLASTER CASTS LOOK LIKE MARBLE, .	30
TO MEND PLASTER CASTS, . . . . .	30
SUBSTITUTE FOR PLASTER OF PARIS, . . . .	30
TO BRONZE, GILD, SILVER AND COLOR PLASTER,	30-31
ARTIFICIAL MARBLE, . . . . .	32
TO CLEAN MARBLE, . . . . .	32-33-35-36
TO COLOR MARBLE, . . . . .	33
CEMENTS, . . . . .	34
A SCULPTOR'S FINISHING PROCESS, . . . .	36
TO TAKE IMPRESSIONS OF LEAVES, PLANTS, ETC.,	39
TO PRESERVE FLOWERS, . . . . .	39
WHITE OR GREEN MOSS CROSSES, . . . . .	40

# THE ART OF MODELING.



NE who attempts to learn the art of modeling without the assistance of an experienced artist will find it a difficult task, as all works that have been heretofore published on the subject are mere outlines, telling the materials used, and omitting all mention of the manner in which the work is done. The authors say, "Get some clay, prepare it, then go to work and form whatever you wish to model," giving no instructions for preparing the clay, etc. The preparation of the clay is one of the most essential and necessary elements of the art. It is our intention to explain every detail of the process of modeling, in so plain and simple a manner as to enable the beginner to take the raw material, and, by following our directions, execute any work desired. Practice, and close attention on the part of the learner, is all that is required; if true genius is present it will inevitably manifest itself and lead to success.

Oliver Wendell Holmes says:

"No soil upon earth is so dear to our eyes  
As the soil we first stirred in *terrestrial pies*."

Among the instinctive manifestations of a child's play, is the desire to mold soft substances—a natural impulse which country children alone have the means, usually, for gratifying; and even among that class the pleasure of "playing in the mud" is too often made

like the "sweets of stolen fruit" by the horror with which tidy mothers regard it. In some homes, occasionally a little heart is made happy by the child's being allowed a lump of dough to mold into such forms as his fancy dictates.

In Kindergarten this instinct is fostered—educated—through the use of sculptor's clay. Upon the tables are placed oil cloth coverings; the little ones are draped in sleeved aprons kept for the purpose; before each child is laid a small quantity of moist clay. All wait until each is helped before touching the clay—usually giving heartily the "thank you" which is expected by the Kindergarten whenever any service is rendered. When the last one has been helped, the eager hands close upon the treasure, and roll it between their palms until a fair sphere has been produced. The sphere may be perfected—no easy task—and denominated marbles, balls, etc.; or changed into apples, cherries, eggs, potatoes, nuts, etc. Or they may be rolled upon the table until cylinders are formed; these may be modified to represent barrels, muffs, lawn rollers, pencils and the like; or hollowed and made into tumblers, pails, tubs, and baskets. The third definite step in making geometric forms is the cube, which is not undertaken until considerable skill in the plastic art has been acquired; the variations made from this form are—boxes, houses, wells, banks, etc.

For the first few minutes—perhaps half of the time devoted to clay work—all the children work upon some geometric figure: then they receive the permission: "Make what you like;" and the fresh pieces of clay then given out are soon transformed into marvellous shapes—all meaning something to their inventors, and all growing week by week to indicate more and more plainly to the Kindergarten the object aimed at.

The individuality of the child reveals itself quite markedly in this work, and it has frequently been

noticed that the first lessons in clay have done more toward awakening dormant powers, ambition, delight in work, and a degree of self-confidence, than any other exercise.

Modeling logically precedes drawing; for the representation of the whole of an object is truer to nature than the representation of portions only of the surface can be. It is also one of the most essential accessories in object teaching; a child never thoroughly knows the form of anything until he is able to reproduce it. Give him a nut, a leaf, or, when advanced enough, an animal to observe, then have him try to make the same in clay, and the degree of his failure or success will show the degree of clearness of perception; and we may be very sure that the next time he sees the object he will look at it with keener interest, and will find something in form or proportion that had before escaped him.

Those who have used clay, modeling enough to see how useful it may be made in illustrating all of the physical sciences, and even some of the abstract, as mathematics, believe that eventually modeling will become an essential accompaniment in every grade of the scholar's course.

Try your hand at modeling. You will find it not only profitable, but a pleasure from which you can derive more enjoyment than from any other pastime. The ease with which you can overcome difficulties which are apparently insurmountable before you make the trial will surprise you.

Modeling can be undertaken without a knowledge of drawing. It is even easier to imitate the forms of an object which can be measured on all sides than to draw it, for drawing has in addition the difficulties of foreshortening and perspective. As far as the rational teaching of art is concerned, it is logically of greater advantage to have lessons in drawing preceded by modeling, or, at least, to have the pupil model from the

round, and afterwards draw what he has modeled.

It is better at first to copy very simple things of the exact size. As the notions concerning the difficulties of art are very vague to any person who has never handled either modeling tool or pencil, we will explain what is meant by simple forms.

By simple forms we mean regular geometrical bodies—and we advise the modeler to keep in mind the forms of the sphere, of the egg, of the cylinder, of the cone, for the primitive bodies; of the triangular pyramid, of the cube, of the prism, etc., for the plane bodies, and to practice copying them. We are convinced that an attentive application in imitating even coarsely these different forms will open the way to a perfect knowledge of composite form.

A child will model instinctively, and will take more pleasure, and find it less difficult to make a perfectly round ball than to draw a circle with a pencil. But if he had to cut a ball out of hard material, such as plaster, he would become disheartened, not knowing how to proceed. Should you then take a cube in plaster and show him how to cut off the four corners, and then, successively, all the other corners made by the first cutting, and so on until you have formed a ball made by the constant cutting of the angles, he will understand by what series of shapes the cube has to pass to become a sphere, and the impossibility of giving a shape to any hard material without the proper implements. Hence, he who has never practiced an art is almost a child; he cannot imagine by what means he can obtain such and such a result.

## INSTRUCTIONS.

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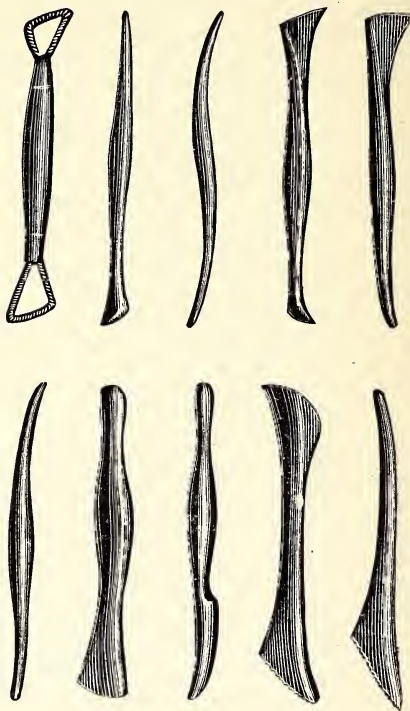
### PREPARATION OF THE CLAY.

The first requisite is clay. This should be of a tenacious nature, and free from sand or gravel. The manner of preparing it differs with artists, but the simplest and, in our opinion, the best methods we will adopt.

Place the clay in a vessel and cover it with water; stir until it assumes a liquid form. Let it settle, then remove the top, using care that the clay which lies on the bottom of the vessel is not disturbed, as all the sand and gravel which may have been in the clay will have settled there. Place that portion which you removed in another vessel and allow it to settle a second time, then carefully pour off the water. Another method is to place a quantity of wet clay in a cloth and press it through. When you wish to model a small figure, bake a small portion of the clay, pulverize it, and to this add an equal quantity of the damp clay; this will make it more tenacious and less liable to crack while working it. The preparation of the clay is a tedious process; yet, in the end, it will be found that the care and attention bestowed upon this part of the work will be amply re-paid by ease with which a proper finish can be given, as the presence of sand, gravel, or other foreign substance upon the surface of the model will cause infinite trouble and annoyance.

## TOOLS.

About one dozen modeling tools, as shown in the accompanying engraving, from half a dozen to a dozen



plaster tools, and two or three small brushes of different sizes, will be required ; with these, and the fingers, you



will have all the tools that any sculptor ever uses, except the vessels, oils, etc., necessary for making molds, a description of which will be given further on.

If you are unable to purchase the modeling tools, you can make them from any close-grained wood, bone, or ivory. Boxwood is the cheapest and best, as you can, with a sharp knife, a piece of glass, or fine sand paper, change them into any desired shape.

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### TO MODEL A MEDALLION.

Before undertaking to model a bust, we would advise you to try a medallion. Let the person whose medallion you wish to make go to a photographer and have two pictures taken,—side view,—just alike, the size you wish the medallion. Fasten one of the pictures firmly upon the under side of a pane of glass, then place clay or wax on top of the glass, over the picture, and trim it off all around the outlines; this can be readily done, as the picture is seen through the glass. If this is done right, it will give a perfect outline of the face. Then fasten the other picture on the table, and, with a pair of dividers, measure the different parts of the face; for example: you wish to ascertain the proper position for the eye, set one point of the dividers on the picture at the end of the nose and the other at the corner of the eye, then place them on the clay in the same position, and you will have the correct distance; in this manner you can determine the exact position of all the features. The true test of the artist is needed here. Patience and perseverance—they are the bone and sinew of genius.

In modeling small articles, we think wax is better than clay, as it will not dry as rapidly, and can be made smoother and kept in better order. If wax is used, it should be prepared after the following recipe:

Virgin wax,  $1\frac{3}{4}$  oz.; resin,  $\frac{1}{2}$  oz.; starch, 2 oz.; vermilion, 2 oz.: melt together, and if too stiff add a

sufficient quantity of the oil of pink to give it the desired consistency.

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### TO MAKE A PLASTER MOLD FOR MEDALLION.

After the work is finished in clay or wax, by looking at it from any given point you can tell whether it will draw in one piece. If you can see every portion from one position, it is all right. Oil it with lard oil; be sure and touch every portion of it, but do not use too much oil. To prepare the plaster, take a dish that will hold a enough to cover the work to the thickness of an inch,—it is better to have too much than too little,—fill it about two-thirds full of water; gently sprinkle the plaster into the centre until it comes to the surface of the water, then stir it. In mixing plaster, never stir it as you do hasty-pudding; sprinkle in the plaster the same as you do the meal, and do not stir until it comes to the top. Pour on the plaster, taking up the model occasionally and shaking it. Make it an inch thick all over the glass; this can be done by allowing the plaster to partially set, then piling it up. Let it remain until the plaster is hard; take it off, clean the mold, and trim the edges. The better way is to cut it into circular form, as it will then be easier to handle. Lay it away for a day to dry; give it a coat of boiled oil—let it absorb all it will, as the oil toughens it. Apply a coat of lard oil; be careful to hit every part. Take a piece of paste-board long enough to go around the outer edge, and about two inches wide, oil it well with lard oil, place it around the edge, even with the bottom, and tie it with a cord. A band of tin or zinc may be used, but it must be thoroughly oiled.

For mixing the plaster, select a dish that will hold about the quantity required, put in water and plaster as before directed, stir it and skim off all the bubbles

and dirt which rise to the surface. Pour it into the mold until it is about half full, shake it and pour out; repeat this operation several times, then fill the mold. When the plaster has become hard, remove the pasteboard band and gently start the cast around the edges. Should it not readily part, wet the back of the mold. These directions apply to the removal of casts from brimstone molds.

When the cast has been successfully taken out, you have the original in plaster. The next step is to finish the surface. The best instrument for this purpose is a plant which grows upon our prairies, sometimes called the "section-plant,"—a sort of reed or rush that grows sections,—the outer surface of which has the properties of a file; with this, a surface can be obtained that will be as smooth as glass. They should be kept moist. Go over the medallion with these, being careful not to erase the fine lines.

By studying the photograph, or, still better, the original, you can change any point, or make any desired improvement, in the plaster. When finished, lay it away until it is perfectly dry; then prepare the following recipe, which will harden plaster almost equal to earthenware:

Boil one quart of boiled oil; put in as soon as it commences to boil, one ounce of rosin and one quarter ounce of white vitrol; let it boil ten minutes; warm the original and apply this mixture while hot.

Let it absorb all it will, then wipe it off with cotton batting, or it will form a coat over the plaster which will fill up the fine lines. Give it several coats of this, always warming the original, and having the mixture hot, and wiping off after each application. Clean and oil the pasteboard; tie it around as before, and take a soft brush, dip in lard oil and rub all over the original, touching every part; rub the oil off with cotton batting, as brimstone molds need but little oil.

## TO MAKE BRIMSTONE MOLDS.

Put brimstone into an iron kettle over a slow fire and heat it until all is melted; set it off and let it cool until it stops smoking, and commences to crystalize around the edges; pour in sufficient to cover the mold about one quarter of an inch, then shake it and fill it up. (The more often brimstone is melted, the tougher and better it becomes). Let it cool and take it out.

Follow the directions given for taking out the original. If it should stick, blow between the cast and the brimstone, at the same time pull. Put the paste-board around the brimstone mold; oil as before described, with brush, wiping off with cotton; mix plaster the same as before, and take a brush, dip it in the plaster, and daub the mold all over, touching every part. This will prevent air from getting between the mold and cast. Fill up with plaster, let it set, and take it out in the manner already described, and you have as perfect a cast as can be possibly made, for brimstone makes the best mold of any material known.

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## TO POLISH PLASTER CASTS.

Should you wish to give the cast a high polish, apply soapstone, pulverized, (the same that shoemakers use) with a soft brush or piece of cotton, while the cast is green; or take white Castile soap, shave it up thin, put it in hot water, and apply in the same way, only the cast must be dry.

If you wish to imitate statuary, or porcelain marble, the following recipe is the best in existence. The party from whom we purchased it is the inventor, and until he sold it to us, it was unknown to anyone but himself:

Take pure sweet milk, boil it and skim two or three times; put it on the face of the cast and blow it evenly on all parts, using care that it does not get on the edge

or back ; lay it away for two or three days, then put it in a shallow dish, face up, and pour in the oil of sweet almond until it comes up to about one-half or two-thirds of the edge of the cast ; be careful that none gets on the face ; as the oil is absorbed, put in more until the cast is saturated. This makes it perfectly transparent, and of a beautiful color ; the milk forms a coat on the surface which will bear washing.

After it is finished, frame the medallion, and if any one can tell it from the finest piece of statuary he is a better judge of marble than we are.

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#### TO MODEL A BUST.

HAVING finished the medallion to your satisfaction, you can try your hand on a bust.

Suppose you wish to make a bust of a friend : the first thing necessary is an iron or wooden frame to support the clay, care being taken that the frame is not so long as to protrude when the work is in progress. The following cut will show how it to be constructed.

Let the cross-piece serve for the shoulders. Should you find this insufficient, you can insert small pieces of wire into the clay where they are needed. Have the frame firmly fastened to a block. Commence at the bottom and build up until you have a rough outline of the head and shoulders.

The next thing is to get a mask. In order to do this, have your friend lie upon his back, and, having raised his head by means of a pillow to the natural position when walking, apply stick pomade (the same that barbers use) to the eye-brows and eye-lashes, plastering them down to the head as close as possible.



Insert quills into the nostrils, and carefully plug the space around each quill with cotton. Cover the parts to be molded with olive oil and lard, equal parts of each melted together; apply by means of a feather, brush, or lump of cotton. Mix the plaster (New York) with warm water, and have it about as thick as cream. Cover the face with plaster, commencing as close to the hair as possible, and spread it downwards over the eyes, which should be kept firmly closed, but in such a manner as to produce no distortion of the features by too violent compression, and continue the plaster as far the lower border of the chin. Put on the plaster to the thickness of about one-half or three-fourths of an inch.

If the person upon whom you are operating has chin whiskers, tie a string about them and rub the pomade all around the edge; put the plaster as close to them as possible. If he has a moustache, and it is not too heavy, it can be treated the same as the eye-brows.

When the plaster has set, which will require but a few moments, tell the person to draw in his cheeks; then take hold of the top and bottom of the mask and tell him to blow; raise the mask gently at the same time and you will have a perfect fac-simile of his face.

Let the mask stand for a day to get thoroughly dry; then take the best white English Castile soap, place it in a dish with a little water, put it over the fire and stir until it is about as thick as soft soap; with a brush apply this to the inside of the mask while warm; let it dry in. Give two or three coats of this, then take equal parts of olive oil and common lard, melt them together, and thoroughly oil the inside of the mask.

Mix your plaster the same as you did in making the medallion; be sure you have enough. Sprinkle the plaster into it until it comes to the top of the water; stir it well, pour it in and out two or three times, then fill it full. After it begins to set, take a spoon and scoop it out the middle; this will prevent the bursting



of the mold by expansion. You had better take a cast of the ear, as you will find it of great assistance to you when you come to work. Operate in the same way as you did in taking the mask; plug the ear with cotton, etc.

With this mask (which of course is a perfect likeness) you can commence operations. We would advise beginners to work by measure. When further advanced, you will find that you will dispense with measurement and work from the eye only. For instance, you wish a bust one-half as large as life; all that is necessary is to measure the mask with a pair of calipers and dividers, measuring each part carefully, and make the model one-half as large. Every portion of the face can be measured in this manner.

Caution must be used to keep clay from cracking when not at work. One of the difficulties to be encountered in modeling in clay, is to preserve an uniform degree of moisture, neither too great nor too little, so that your finished work, light reliefs and details, may be preserved in the proper state of firmness, and yet moist enough to work upon.

To begin with, the clay should be fully worked and washed, then packed with a packing knife or trowel to the bulk of the object to be modeled, in small quantities at a time, using a light solution of treacle and alcohol on the trowel, to moisten and make the parts incorporate. This solution may be used in first mixing the clay, with a very little glue water for the "core" or body of the work. The surface may be left in the usual state, well worked in the hand or on slate before laying on each part.

The only practical and efficient method for keeping clay uniformly moist and compact, is to cover it with a block-tin or zinc box or case. If you are unable to procure tin or zinc, stretch canvas over a wooden frame and give it two good coats of paint. Lay a wet cloth on the outside of the case. One part of the work will

not be more exposed than another. Laying a wet cloth immediately over the clay is imperfect, as the moisture will evaporate in a warm room.

The best instrument for sprinkling water upon the clay we have found to be a tin tube eight or ten inches long, around the end of which is wrapped a cloth. Dip into water, blow through the tube, and it finely moisten the work in places which could be reached by no other process.

A small brush will be needed to smooth down the fine places around the eyes, corners of the mouth, etc.

Let the clay dry gradually, and polish it with the fingers as it dries.

The head can be measured from life, making allowance for the hair. It will be a good plan to have a bust executed by a good artist, to examine; by this means you can learn how to finish the hair, eyes, and many other points.

After you have measured the model, and the size and proportions are correct, then comes the test of the true artist—to get the expression. This can only be obtained by studying the face, or a good picture.

When the model in clay is finished, and you are satisfied with it, apply the same oil that you used upon the molds,—olive oil and lard,—rubbing it with the fingers until it is polished as smooth as possible; let it dry, and apply it three or four times, carefully rubbing it each time. If you have good clay, it will receive a polish equal to glass.

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#### TO MAKE A TRANSFER MOLD.

To make a good job a transfer mold will be required, which is made in this manner: Oil the bust well. Mix about the quantity of plaster you think you will need; put a little Venetian red into it to give it a color, so you will know where to take the shell off, as the bust



will be white. By doing this you will not injure or be liable to cut the bust; the color will show you when it is down to it. Use good New York plaster for all your molds.

Before you mix the plaster, take small pieces of tin or thin paste-board, oil them and stick them in the bust from the top of the head around just behind the ears, down over the shoulders, all around; then commence and cover the back part of the head and shoulders with the plaster, blowing it into the hair, etc. The plaster should be thin. Make the shell about one-half or three-fourths of an inch thick. When all is covered, let it stand until the plaster is set, take the tin or paste-board out, filling the holes carefully with clay. Then oil well the edge of the plaster which came up against the tin, and oil the front part of the bust. Mix some more plaster, do the same as you did to the back part of the bust, and do not fail to blow the plaster into all the crevices, nose, eyes, mouth, etc. When covered, let it stand until it is thoroughly set. Take a fine wire, put it into the crease, and, with an end in each hand, saw gently down through the clay; divide it into two parts, and pick the clay out of the shells. Save the clay, as it becomes better the more you use it.

Wash the molds well with the same kind of soap used on the mask, being careful not to break them. Oil them thoroughly two or three times, drying it in. Tie them together firmly with a string, and pour the plaster in through the bottom. Mix New York plaster the same as before, without color. Pour it in and out two or three times, turning and shaking it at the same time. Fill it and let it set. When set, take off the strings, and with a blunt chisel and small wooden mallet, commence at the top of the head, close to the crease, and cut the shell off in small pieces. Take care not to hit the bust. The mold being made of red plaster, you can tell when you come to the bust, as that will be

white. Remove all the shell or transfer mold. Wash the bust thoroughly with the soap, let it stand a day, then clean it off with the plaster tools. Should there be any holes, soak the bust in water and fill them with plaster. Always use clear plaster and water in filling holes.

When the bust is in plaster you can see it to better advantage than you could in clay; and should you find any places that you think you could improve on, you can cut it away with the plaster tools. It will take a week or more for it to dry sufficiently to make the other mold. You can improve this time by studying your friend's features and improving the bust.

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#### TO MAKE A PIECE MOLD.

One of the most difficult tasks in modeling is the making of a good piece mold. The process can not be readily explained, as no two molds are precisely alike; it will be necessary for you to exercise your judgement in making the pieces so they will draw—that is, in such a way that they may be removed without breaking the cast or the piece. If you can obtain an unfinished cast from a manufacturer, the seams upon it will show the form and position of the pieces. The pieces should be so made that they will bind upon each other; dove-tail them together. Should any of the small pieces not bind, gum them and that will hold them. Fine plaster should be used for these molds as the coarser quality is too porous; fine plaster may be used on the face of the mold, and this backed up with the coarse. Oil the transfer cast well, and having determined the position of a piece, mix the plaster and lay it on to about the thickness of three-fourths of an inch; allow it to set, then carefully remove it, trim the edges and back neatly, and make two hollows on each of the edges with the round end of a table knife, like the deep im-

pression of a thimble's end. Place it back, oil the edges, clean all the old plaster out of your dish, and clean the spoon that you stir with. Save the old plaster for the making of molds; the manner of using it will be explained in the list of recipes.

Continue putting on pieces, operating the same as with the first piece of the mold, taking care that the pieces will draw even. After you have all the bust covered, and the back of each piece scraped, make a hole in each piece the same as you did in the edges, with a table-knife. Put two or three coats of soap on, using the same as was used on the mask. Dry it in, then give it the same amount of oil that you used before. Make a shell over the whole bust with Michigan plaster, in two parts, covering one-half at a time. Put this shell on the same as you did the transfer shell, only make it thicker; then take it apart, take out the cast, put the pieces back in their places in the shell and tie them together. Lay it away for a day or two until it gets dry, then take it apart and brush each piece, then oil it well with the following mixture:

Take a half gallon of boiled oil, put it on the stove, let it boil; add one and a half ounces of resin and the same of wax, and a half ounce of white vitriol. Let it boil until it is middling thick.

Apply this preparation to each piece while warm; dry it in by the stove two or three times, and you will find when your mold gets dry, it will turn yellow and hard, will have the ring of earthenware, and be about as durable. Oil it well each time you cast, you will find it will not absorb much.

Your mold being ready, mix New York plaster thin, about what you think will be needed for a thin coat, Pour it in; keep turning the mold in your hands, coating the inside all over. Pour it in and out two or three times; then mix Michigan plaster as soon as possible

and fill the mold with it. If you wish to make it hollow, put in a small quantity and keep turning it in the hands until it sets.

In molding a figure where the arms and legs are extended from the body, you can mold them separately. After they are in the clay, cut them off close to the body and make a separate mold from them. When cast, take a knife and cut a hole in the arm or leg, on the end where it was cut off; also in the body; wet the limbs and the body; mix plaster and fill up the holes, place them in their proper places, press them together, let the plaster set, then trim the plaster off and it will not show.

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### TRANSFER MOLD.

There are several ways for making transfer molds; we have given the one which we consider the best and easiest, but would advise the use of the following method, if not in too great a hurry:

After the bust has been prepared for the transfer mold, put on the tin or pasteboard as before directed. Mix plaster thin in water to which has been added a sufficient quantity of Venetian red to give it a high color, lay it upon the back of the bust, and blow it in; the coat should be about one-fourth of an inch thick. When this has set, it must be given a coat of clay water,—water in which clay has been mixed to about the thickness of common whitewash,—applied with a brush. Then mix plaster in clean water, without color, and, as it begins to set, place it upon this first coat with a trowel to the depth of about an inch, over the whole back portion of the bust, close up to the tin or pasteboard. When this has set, remove the tin or pasteboard, and carefully fill the holes made by it with clay; then trim the edge of the plaster, make holes in it about

one-fourth of an inch deep and six inches apart, and, with a brush, coat it with melted soap. Oil the clay and the edge of the plaster, repeat the coats of colored plaster, clay water, and white plaster, the same as upon the back. When this has set, pry the mold apart with a chisel or knife; if it should stick, wet the whole mold; should this do no good, set it into a tub of water, let it soak, and as soon as the water penetrates to the clay it can be easily removed. Prepare the mold for casting in the same manner as by the other method. The outer shell can be taken off in large pieces, as the clay water will allow it to readily part from the colored plaster. The inner coat of colored plaster must be very carefully chipped off in small pieces to prevent injury to the cast.

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## TO MOLD THE HAND.

If you wish to obtain a cast of the hand of a living person, mix plaster in the usual way and lay it on a board which has been oiled; oil the hand with lard oil, and place it in the plaster before it sets: gently press it down until it is about half buried in the plaster; let it remain until the plaster is hard. The hand may then be removed, the edges of the plaster neatly trimmed, and coated with melted soap; replace the hand, oil it, and cover it with mixed plaster to the thickness of about three-fourths of an inch; when this has set, remove the top piece and take out the hand; thoroughly soap and oil the mold, tie the piece together, and make the cast. Another method is to cover the hand entirely with plaster, first having placed a small strong cord around the hand, commencing at the wrist on one side, and carrying it around the ends of the fingers to the other side of the wrist, leaving the ends long: the cord must be carefully drawn out before the plaster has become hard,

which has the effect of cutting the plaster into two pieces. The hand is then withdrawn and the cast made as above directed. These rules also apply to the casting of a foot.

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### MODELING TABLE.

For modeling works in the round, a turn-table will be very convenient. It is made from two circular pieces of board, one resting upon a pivot in the centre of the other; small rollers may also be placed between them to facilitate their turning. The clay is placed upon the upper board. The turning of the table will bring any portion of the work before the operator, and thus enable him work under the same light on all parts of the model.

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### TO MAKE GELATINE MOLDS.

The principle of gelatine molding is embodied in the idea that any article may be suspended in a bowl of hot jelly, allowed to remain until the jelly is cold, then withdrawn,—which its elasticity will readily permit without injury,—and a perfect mold of the article will be the result. It follows, then, that if this mold is filled with mixed plaster, a *fac simile* of the article will be produced.

The first object sought for, is something to replace the bowl, and the simplest and best substitute is a plaster of Paris shell, or case, which shall conform to the general outline of the object, leaving a space of about one-half an inch between them.

We will suppose that a mold over a bust one-half the size of life is desired; the shell is made in the following manner:



Stand the bust on its pedestal and cover it with three or four thicknesses of old newspaper; place clay all over it to the thickness of about one-half an inch—a good plan is to roll the clay out into a sheet, cut it into strips, and lay it on to the bust. When covered, oil the clay. Mix plaster, and as it hardens, pile it up on one side, from the top of the head down the centre of each shoulder, until the back part is covered to the thickness of about three-fourths of an inch. Let it set; take off, trim the edges, and make holes with the point of a table-knife about six inches apart all around the edge of the piece. (The reason of this is, that when the plaster is put upon the front, it will fill these holes and form a key, which will aid in placing the mold in its proper position, and, in addition, serve to hold the pieces firmly together). Shellac and oil the edges well, replace it upon the clay, and lay plaster upon the front portion the same as upon the back. When this piece is completed, without removing the pieces, turn the whole upside down, wet the bottom of the pedestal, and scratch it with the point of a knife, but do not oil it; the effect of this is to make the bottom of the mold adhere to the pedestal, and, consequently, it will always remain in the same place. Then oil the bottom edge of the other pieces, and lay on mixed plaster to the thickness of about an inch over the whole bottom part of the mold, pedestal, etc. When this piece becomes hard, remove the two upper pieces, and in the top of them make two or more openings, one, an inch and one-half in diameter, through which the glue is to be poured, the others smaller, to allow the escape of the air. This being done, remove the clay and paper from the bust, let it dry and give the inside of the mold, the bust, and every place which the glue will touch, a thorough coat of gum shellac dissolved in alcohol. When dry, oil them well, replace them over the bust, tie them firmly, and

lay moist clay around the holes in the top to the height of about two inches; oil the clay, and all is then ready for the glue.

Get Peter Cooper's white glue. Soak it in cold water for about an hour and a half, then take it out and spread it in a thin layer upon a clean board or bench, and let it drain for about one hour; then place it in the glue kettle. This kettle must fit into a larger kettle (the same as a common glue-pot), leaving a space of about one inch on the sides and two inches at the bottom. The inside kettle should have a tight cover, and must be fastened down to prevent its rising when the larger kettle is filled with water. Add about half a pint of clean water to the glue, fill the outer kettle, place it on the fire and let it boil for about two hours, or until it is thoroughly melted; it must be free from lumps, and of about the consistency of golden syrup; if too thick, add enough boiling water to reduce it to the proper point. The glue must not be poured as soon as taken from the fire; remove the inner kettle and let it stand until the hand can be borne on the outside, or until very little heat can be felt, then slowly pour it into the mold until it is filled to the top of the clay placed around the holes. It may be necessary to add a little more glue after it has stood for a short time, as it sometimes settles.

The mold must be allowed to stand from five to eight hours, or until the glue is cold. Then carefully remove the shell, and, with a sharp knife, divide the glue into two parts, corresponding with the pieces of the shell; this can be readily done, as the joint of the shell leaves a seam in the glue. The glue which projects above the shell must be cut off.

When the glue has been successfully removed, throw a handful of dry plaster into each piece, shake it, and pour it out; the plaster will absorb the oil that was used on the bust. The mold must then be washed with



a solution of alum, in proportion of one ounce of pulverized alum to one quart of water; this mixture should be kept on hand, ready to use when needed. After applying the solution, let the mold stand for about two hours.

When the mold is ready for use, it must be carefully oiled with extra lard oil in which wax has been melted in proportion of one-half ounce of wax to one gallon of oil; it will be necessary to heat the oil to make the wax incorporate with it. Apply the oil with a small bristle brush; take the mold in the hands and bend it so that the brush will touch every part. But little oil is necessary; it is best to use considerable at first, and then rub it off with a dry brush. When this is done, replace the glue in the shell, tie it together, and it is then prepared for the cast.

The plaster should be mixed to the consistency of thick cream, and should be fine—either New York or Philadelphia. In mixing the plaster, take, in a bowl, the quantity of clean water necessary to fill the mold, sprinkle the plaster into it until it comes to the top, then stir it and skim off the bubbles. Pour the plaster into the mold, turn it, and let it remain until set. Before it becomes hot, take the cast out in the same manner as the original was taken from the mold. Some grades of plaster will become hot before the cast is hard enough to be taken from the mold; this happens more especially in warm weather, and has the effect of melting the fine points of the mold; it may be overcome by adding a small quantity of lime water—about a tablespoonful to a gallon—to the water in which the plaster is mixed. A teaspoonful of strong alum water to a quart of the casting water, will hasten the setting of the plaster. To ascertain if the plaster will need anything to set it quick, mix a small quantity and pour on the glue; if it does not melt, it is all right. Cast in a cool place.

When the work is finished—that is, when all the

desired casts have been made,—remelt the glue and pour it out as thin as possible upon a clean board which has previously been oiled; when removed from the board, it will become dry and hard, and can be laid away and used over again when wanted.

The following is a list of the materials and tools required for molding the bust; larger or smaller objects will need proportionately more or less material:

4 lbs. Peter Cooper's white glue.

10 lbs. plaster of Paris.

10 lbs. moist clay.

$\frac{1}{2}$  pint extra lard oil.

1 oz. pulverized alum.

4 ozs. gum shellac dissolved in alcohol.

A glue kettle of about one gallon capacity.

2 or 3 plaster tools.

2 or 3 small bristle brushes.

A tea cup, 2 or 3 large bowls, and a sharp knife.

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### PROPORTIONS.

The following proportions of the human figure will be of service to you in modeling life-size figures:

When a well formed man extends his arms to their utmost stretch, the distance from their extremities equals his height.

The longest toe is equal to the length of the nose.

The hand is the length of the face.

Twice the breadth of the hand equals its length.

The breadth of the hand is equal to that of the foot.

The thumb is one nose in length.

The space between the eyes is equal to the length of one eye.

The length of both eyes is equal to the length of the mouth.

Not one nose in a hundred is straight.

A right-handed person's nose inclines to the right—left-handed the opposite.

You will find by modeling that almost every person's face is larger on one side than the other.

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## HINTS AND RECIPES.

Always model by a sky-light if possible.

In coloring plaster of Paris use mineral colors.

In using dowels for plaster, always use copper or brass wire.

To make medallions and all small work, model on a piece of slate, marble, or glass.

If you want to make a pure white gloss finish, use the milk as directed in polishing plaster without the oil.

In making a bust, the chin-beard, if long, can be cast separately. It will save much trouble, as it would be difficult work to make a mold under the chin.

Always model your figures naked, and put the drapery on afterwards. Sculptors generally study from wet drapery. When wet, the form over which the drapery falls will be more distinctly marked.

It is best to cast hollow on account of air-holes. Hollow casts are not so liable to have them, as the air will escape to the middle while you are turning the mold. If solid, there is no escape for it, and it generally remains next to the mold.

Figures or groups, as statues, etc., are technically classed as works "in the round." If not detached from a background they are called "reliefs," and are further distinguished, according to the degree of such relief, as "high," "medium," and "low relief," ("alto," "mezzo," and "basso relievo").

When modeling, keep a small quantity of clay on

hand in a wet cloth. As you take the clay off your work, put it in the cloth. By this means you will always have prepared clay when you wish to add any to your work.

Save all old plaster, and when you wish to make a large mold wet it and dip it into fresh plaster. Put it in where it will not come in contact with the model. This will save plaster, and answer all the purposes of new plaster. If you wish an extra fine cast, use the imported plaster such as dentists use.

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### PROFILE FROM LIFE.

Modelers, who work from life, will find the following beneficial to them in taking a profile :

Take a pane of common glass, 12 by 15, frame it so that it can be fastened on a chair ; then put a piece of tracing paper on the opposite side, fastening at each corner, using care to get it smooth ; then have the person you wish to take place, his face against the glass, on the side which has no paper and place a light directly opposite ; then trace the outlines on the paper. You can vary the size by moving the light nearer or further off.

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### PROPORTIONS OF THE HUMAN FORM.

The human form, drawn perfect, is called antique or an academical figure. The proportions of the form of man have in them an homologousness, or a regularity in the whole, which is the cause of its harmony. The several degrees of plumpness, the meagreness, render the widths and the thickness excessively variable ; but there is a medium which is the result of health and strength ; it is that which we shall describe, and which

we shall take for our basis in the following explanation :

The height of man is generally divided into seven parts or heads ; that is, at least, the division generally adopted by the French sculptors ; the ancients reckoned eight ; some sculptors seven and one-half ; but practice has demonstrated that the head was small relative to the rest of the body.

It is admitted that the height of the head is equal to the seventh part of the total height of the body. To demonstrate the more easily, we will give to this height of the head the name of unit, then subdividing into fourths, we will call each quarter a part. The first extends from the head to below the chin ; the second, from the chin to the lines passing under the nipples of the breast ; the third, from the nipples of the breast to the line of the hips ; the fourth, from the line of the hips to one-half of the thighs ; the fifth, from one-half of the thighs to the patella or middle of the knee ; the sixth, from the patella or knee-cap to below the calf ; the seventh, from below the calf to the sole of the foot.

The following are the principal widths of a figure :

UNITS. PARTS.

The head, in the widest part, which is		
across the eye-brows,.....		3
Near the middle of the neck,.....		2
Between the outside of the shoulders,.....	2	
Between the sockets of the shoulders,.....	1	2
Across the waist, or the narrowest part of		
the body,.....	1	$1\frac{1}{2}$
Across the hips,.....	1	3
At the bifurcation of the thighs.....	1	2
Across the middle of each thigh.....		3
Across the patella, or knee-pan,.....		$1\frac{3}{4}$
Across the widest part of the calf,....		2
Below the calf,.....		$2\frac{3}{4}$
Across the small part just above the ankle,		1

## The length of the arms and hands :

	UNITS.	PARTS.
From the adherence of the shoulder to the elbow.....	1	1
From the elbow to the wrist.....	1	
From the wrist to the extremity of the longest finger.....		3

On adding these different lengths together we shall have :

For each arm, with its hand .....	3
For both.....	6

On adding to this one unit and two parts, being the width between the sockets, a total of seven units and two parts will be found in an academical or antique figure, representing a man with the arms extended horizontally. On deducting the two parts just indicated, which re-enter, by the play of the joint into the socket, we shall have a total of seven units exactly, or the same as the total height of a man.

## A profile of a man :

	UNITS.	PARTS.
The profile of thickness or width from the front to the back of the head.....	1	
Thickness of the neck.....		2
Thickness of the body at the height of the nipple.....	1	$\frac{1}{2}$
At the top of the thigh.....	3	$\frac{1}{4}$
At the middle of the thigh.....		3
Thickness at the knee and below the calf are each.....		$1\frac{3}{4}$
Length of the foot.....	1	

We must here observe that the above explanations should not be considered as invariable, but as the limits of a perfect form, which should serve as a guide for the

designer. The head is proportionably larger with small individuals; and on the contrary, men of larger stature have the head proportionably smaller, and consequently, returns to the geometric description of the ancients, who gave eight units for the human figure.

The age and sex also causes equal differences; thus, in a female, the trunk is longer than with the male, and the hips more protuberant, while the shoulders and chest are narrower.

The child, at its birth, is but four units in height. The body increases more, in proportion to the head, as it advances in age. At five years the child is about five units in height, and that quality of proportion augments until it attains the age of twelve years.

The proportions of a child of five or six years are :

	UNITS.	PARTS.
From the top of the head to below the chin,	1	
From below the chin to the bottom of the trunk,.....	2	
From the bottom of the trunk to the soles of the feet,.....	2	

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### MISCELLANEOUS RECIPES.

#### VARNISH FOR PRESERVING PLASTER OR MARBLE EXPOSED TO AIR.

Melt two parts of white wax with eight parts of very pure essence of turpentine. Apply it carefully with a soft brush while warm. Have the marble or plaster perfectly dry.

#### TO CLEAN ALABASTER.

For cleaning alabaster, there is nothing better than soap and water. Stains may be removed by washing with soap and water, then white-washing the stained part, letting it stand some hours, then washing off the white-wash and rubbing the stained part.



## TO MAKE PLASTER CASTS TOUGH.

Immerse them for a sufficient time in a hot solution of glue to permit its penetrating the entire mass.

## TO MAKE CASTS LOOK LIKE MARBLE.

One quart of water saturated with alum (1 lb., nearly); mix plaster with this; polish it with flannel.

## TO TAKE CASTS FROM PLASTER MOLDS OR MARBLE.

Coat the work with collodion; it will dry in about five minutes; cast as usual; wash off collodion with alcohol or ether.

## MENDING MODELS.

Use liquid silex. Wet the two surfaces with it, and allow a few moments for it to dry. It will be found very useful in cases of accident to a cast. Shellac varnish is also recommended.

## SUBSTITUTE FOR PLASTER OF PARIS.

Best whitening, two pounds; glue, one pound; linseed oil, one pound. Heat together, and stir thoroughly. Let the composition cool, and then lay it on a stone covered with powdered whiting, and heat it well till it becomes of a firm and tough consistence; then put it by for use, covering with wet clothes to keep it fresh. When wanted for use, it must be cut in pieces adapted to the size of the mold, into which it is forced by a screw press. The ornament may be fixed to the wall, picture frame, etc., with glue or white lead. It becomes in time as hard as stone itself.

## TO BRONZE, GILD, SILVER AND COLOR PLASTER.

All the different tints of bronze may be easily imitated on plaster by following the directions:



To imitate green bronze, prepare the plaster with chrome yellow and Prussian blue, ground in oil, then apply bronze powder with a brush. For antique bronze give the plaster a coating of boiled oil and burnt sienna; let it dry a little, then apply black lead and emerald green ground in oil; a little cobalt and oil may then be used in the crevices.

The bronzing of plaster casts is effected by giving them a coat of oil or size varnish, and when this is nearly dry, apply with a dabber of cotton or a camel-hair pencil, any of the metallic bronze powders; or the powder may be placed in a little bag of muslin and dusted over the surface, and afterwards finished with a wad of linen. The surface must be afterwards varnished.

A cheap way to bronze, is to go over the figure with a size made of starch and water. Put a little starch in warm water, stir it well, put it on while it is warm; this will form a coat which will keep paint or varnish from penetrating. Then use asphaltum varnish; give it a coat before it gets thoroughly dry; put your bronze on with cotton or brush; the asphaltum being black, it will take but little bronze.

To gild it, or silver it, it must first be prepared by giving it two or three coatings of boiled oil and a little vermilion. When the plaster will absorb no more, it must be covered with gold size.

To spread the gold or silver leaf on it, the necessary implements are a gilder's cushion and knife. The book containing the leaf—gold and silver—is opened on the cushion. A single leaf at a time is cut into equal parts. With a small flat sable, slightly moistened with grease, the leaf is applied to the plaster, care being taken to

flatten it down with cotton wadding. Thus prepared, a copy can be kept a long time without alteration.

The best method for coloring plaster is to give it that yellowish appearance so soft and pleasing to the eye, to obtain which a little yellow ochre may be used in the plaster before casting. It must be mixed with it in the dry state. Very little is required. As it is impossible to give any exact proportions, the best way is to try the tint by wetting the plaster mixed with ochre and allowing it to dry. For some things a reddish tint is desirable, in which case a little Venitian red may be used with the yellow, and the tints varied *ad infinitum*.

#### ARTIFICIAL MARBLE.

It is said that artificial marble may be made as follows: Mix plaster of Paris in a solution of alum; bake in an oven and grind to a powder; then mix with water and form into shape. It will bear a high polish.

#### TO REMOVE SMOKE STAINS.

To remove smoke stains from marble, wash the marble with soap and warm water, then with a solution of weak oxalic acid; wash it off in ten minutes. Repeat until white.

#### TO TAKE STAINS OUT OF MARBLE.

Take ox-gall, wineglassful of soap lees, one-half wineglassful of turpentine; mix and make into a paste with pipe clay. Put on the paste over the stain and let it remain for several days. If the stain is not fully removed, a second application will generally prove sufficient.

#### RECIPE TO CLEAN MARBLE.

Pulverize a little blue stone with four ounces of whit-

ing; mix them with an ounce of soda dissolved in a little water, and four ounces of soft soap; boil the mixture a quarter of an hour over a slow fire, stirring constantly; lay it on the marble with a brush while hot, and let it lie half an hour; wash it with warm water, flannel and scrubbing-brush, and wipe it dry.

#### TO CLEAN MARBLE, SIENNA, JASPER, PORPHYRY, ETC.

Mix up a quantity of the strongest soap lees with quick lime to the consistency of milk, and lay it on the stone, etc., for twenty-four hours; clean it afterwards with soap and water, and it will appear as new; this may be improved by rubbing or polishing it afterwards with fine putty powder and olive oil.

#### IRON STAINS.

Iron stains may be removed from marble by wetting the spots with oil of vitriol, or with lemon juice, or with oxalic acid diluted in spirits of wine, and, after a quarter of an hour, rubbing them dry with a soft linen cloth.

The above receipt we found in an old receipt book. They may do it, but we have our doubts.

#### TO CLEAN MARBLE.

If you have got a small piece of marble that is stained or dirty, put it in a kettle of water with a little washing soda; boil it, and you will find that it will come out as white as ever. If a large piece, put it in a cistern or some large trough, or barrel, keep it covered with water six or eight weeks, take it out and scrub it with a brush, and you will find it as clean as when quarried.

#### SEVEN COLORS FOR STAINING MARBLE.

It is necessary to heat the marble, but not so hot as to

injure it, the proper heat being that at which colors nearly boil. Blue—alkaline indigo dye, or turnsole with alkali. Red—dragon's blood in spirits of wine. Yellow—gamboge in spirits of wine. Gold Color—sal. ammoniac, sulphate of zinc and verdigris, equal parts. Green—sap green in spirits of potash. Brown—tincture of logwood. Crimson—alkanet root in turpentine. Marble may be veined according to taste.

#### CEMENTS.

Soak isinglass in water till it is soft, then dissolve it in the smallest possible quantity of proof spirits by the aid of a gentle heat. In two ounces of this mixture dissolve ten grains of ammoniacum, and, while still liquid, add half a drachm of mastic, dissolved in three drachms of rectified spirits. Stir well together and put into bottles. Melt it by standing the bottles in hot water, and use directly.

Pulverized china, porcelain, marble or burned bone, mixed with the white of an egg and a little lime, will stick anything and set quick.

White lead and demar varnish makes a cement that works like a charm.

#### CEMENT FOR MODELING.

Boil paper in water to a smooth paste, and to every pound of this add a pound of sifted whiting and a pound of good size. Boil to the thickness required. For use, mix it with finely powdered plaster of Paris to the proper consistency, and use immediately. Used for statues, busts and ornaments, it receives a fine polish.

Marble may be cleaned by mixing up a quantity of the strongest soap-lees with quick-lime, to the consistence of milk, and laying it on the marble for twenty-four hours ; clean it afterwards with salt and water.

We have been informed that common clay well mixed, plastered on marble that has been stained with iron rust, will remove it. Mix it to the consistency of putty, place it on the part that is stained, let it remain until partly dry, then wash it off and put on some fresh, and continue doing so until it disappears.

We are also informed that it would take out any stain except grease. This is cheap and simple, and it will do no harm to try it.

Chloride of lime mixed with pulverized chalk, is good to remove stains from marble.

Take a little spermaceti or white beeswax to fill up holes in marble, if they are not too large.

Cuttle fish bone, such as they feed canary birds, is a good thing to clean the dust off polished marble. Dip it in clean water, and use the soft side, and it will not effect the polish.

Take one-half soda (baking soda), one-fourth pulverized chalk, one-fourth pulverized pumice stone. Mix to a thin paste (on the stone), with hot water, let it remain over night, wash off with clean water and soap, repeat until it is all out. If that does not start it, mix the powder with lemon juice.

First brush the dust off, then apply with a brush a good coat of gum-arabic, about the consistency of thick office mucilage ; expose it to the sun, dry wind, or both. In a short time it will crack and peel off ; wash with a

clean rag, and renew the application if necessary. It is an excellent absorbent.

To remove grease from marble : Aqua ammonia, two ounces ; soft water, one quart ; saltpetre, one teaspoonful ; shaving soap in shavings, 1 ounce ; mix all together ; dissolve the soap well, and any grease or dirt that cannot be removed with this preparation, nothing else need be tried for it.

Powers, the well-known sculptor, gave the following directions in reference to the cleaning and care of marble statues :

“ Allow no one to touch them, for the oil on the skin will be sure to discolor the marble. In cleaning, be sure to use pure cold water only ; and wash with a painter's small brush. To brush off dust merely, use a fly-flap made of peacocks' feathers, which is to be used for no other purpose, so you will be sure it is perfectly soft and dry.

“ Cover the marble in summer with gauze, to keep off the flies. If any flies or insects should get to it, use alcohol to remove the blemish, and on no account use soap and warm water, for it will be sure to discolor the marble.

“ The light should fall on the statue or bust from such a height as to leave a hair's breadth between the shade of the nose and the upper lip ; and a shade in the window, or light cloth is desirable.”

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#### A SCULPTOR'S FINISHING PROCESS.

Mr. Powers modeled all his statues in plaster ; for his busts he used clay. As the greater part of the latter were portraits, to be steadily worked upon until finished and cast, there are not the same difficulties to be

encountered as in modeling a statue, but the thought frequently occurred to him that it would be infinitely more convenient to work in plaster altogether.

Adjoining his studio he had a little machine shop, in which, when over weary with studio labors, he passed many hours, working out some of the many inventions to which his fertile brain had given birth. He made all the instruments and tools which he used in his studio, and which were of fine steel, light and delicate, instead of the rather clumsy wooden ones in general use. He confessed that but for his knowledge of mechanics, and the facilities he had for making such instruments from time to time as he required, he would not have been able to carry the idea of modeling in plaster to perfection, and it was not at all likely to be adopted by others, but that he found it a great advantage. He could throw down his tools at night, and leave his statue for an indefinite period—for years, if he wished—then take them up and commence at the very spot he left, to work upon it again.

The process, as he explained it, was very ingenious and interesting. He first arranged the lines of his figure on his movable platform of iron bars and rods; these he fastened firmly together in place, and thus had his skeleton. He then mixed his plaster, which, before it was hard, he cut or creased into blocks of different shapes and sizes, such as he knew he would require. Then, when they were hard, he arranged them on his skeleton, completely fastened them together with moist plaster, which, when it set, formed one solid mass. This was then formed into a semblance of the future statue with more moist plaster; then he went from one process to another until the beautiful thing approached completion. He proceeded slowly but satisfactorily up to that point, when his trouble commenced anew. He found that however sharp a knife, chisel, or what he



used in finishing up, tiny bits would break out or chip off, destroying the beauty of the surface. After much consideration, he decided that the only way to finish was by using files of various shapes and sizes. He had found the idea, truly, but in use they clogged so fast with the lime dust, that he could make but slow progress. Then it occurred to him that they must be open files; files, but with a hole behind each tooth for the dust to pass through and fall off. He made them, and they worked like a charm. He used many of every size and shape, curved, straight, broad and narrow; some with holes the size of a shot; others (those used at the very last to put on the fine, skin-like texture), as fine as the eye of a needle. Some were simply to push forward; others only to draw backward. Some were to take off the plaster in quantities; others, only a tiny dust. His work was accomplished, and he pursued his labor with perfect ease, and at leisure. The arms and head were fastened on in such a way that they could be removed at pleasure, and in any way worked upon more easily.

## TO TAKE IMPRESSIONS OF FLOWERS, LEAVES, ETC.

Take a sheet of fine wove paper and oil it with sweet oil; after it has stood a minute or two, to let it soak through, rub off the superfluous oil, and let it hang in the air to dry; after the oil has pretty well dried in, hold the sheet over a lighted candle, so that the flame will touch it, and move it quickly to and fro until it is perfectly black. When you wish to take impressions of plants or leaves, place them carefully upon the blackened surface of the paper, lay a piece of clean paper over them, and rub them with the fingers equally in all parts for half a minute; then take up the plants or leaves, being careful to preserve their shape, and place upon the paper on which the impression is wished, cover them with a piece of blotting paper, rub it with the fingers for a short time, and it will give an impression superior to the finest engraving. The same piece of black paper will serve to take off a great number of impressions.

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## TO PRESERVE FLOWERS.

A new mode of preserving flowers, fruit, and botanical specimens generally, has been suggested by Dr. Presse, which we think will be appreciated by those who wish to preserve specimens gathered by departed friends, or to retain the form of flowers for botanical teaching. The process consists in simply dipping the flowers into melted paraffine, and withdrawing them quickly, when a thin coat of paraffine instantly sets and encloses hermetically the plant so treated. In order to be successful, the flowers should be freshly gathered, perfectly dry, and free from dew or moisture of rain. The paraffine should not be hotter than just sufficient to liquify it; and the flowers should be dipped into it sep-

arately, holding them by the stalks, and moving them about to get rid of the bubbles of air which are apt to become imprisoned within the corollæ of the flowers. Those parts of the plants or flowers which are not to be preserved should be removed with scissors prior to dipping them in the paraffine.

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#### WHITE OR GREEN MOSS CROSSES.

Very fine effects are produced by covering wooden or cardboard crosses with finely fringed tissue paper. The paper should be cut into strips about one and one-half inches wide, then fringed with scissors as finely as possible, and wrapped around closely until the whole is covered like moss, none of the foundation being visible. They may be made of pure white paper, or of several shades of green, and the effect may be pleasantly varied by mingling or entwining a few wax or dried flowers among the mass. If pure white wax flowers are used with tissue paper, it will be very chaste. A wreath of autumn leaves in wax will also be very pretty. Baskets and mats of the same material are pleasing.

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